

STABLE WHEEL ASSEMBLY

2 BACKGROUND OF THE INVENTION

3 1. Field of the Invention

4 The present invention relates to a wheel assembly, and more
5 particularly to a wheel assembly that can provide a comfortable riding stance
6 and prevent a scooter or an electric motorcycle from turning over when being
7 ridden over rough terrain.

8 2. Description of Related Art

With reference to Figs 3 and 4, a conventional scooter or electric motorcycle has a wheel assembly. The wheel assembly has two wheels (60) respectively mounted at two sides, a spindle (61) and a wheel stand (62). The spindle (61) has a middle portion and a through hole (not shown). The spindle (61) is transversely mounted between the wheels (60), and the wheels rotate independently on the spindle. The wheel stand (62) is vertically mounted on the spindle (61). The wheel stand (62) has a distal end (not numbered), a proximal end (not numbered) and a bracket (621). The bracket (621) has a hole and is securely mounted on the distal end of the wheel stand (62) and is further mounted on the middle portion of the spindle (61). A threaded pin is inserted into the hole of the bracket (621) and the through hole of the spindle (61) and a nut (not shown) is screwed on the threaded pin so that the wheel stand (62) is pivotally mounted on the spindle (61) via the bracket (621).

22 The conventional wheel assembly has the following disadvantages:

23 1. When the conventional wheel assembly travels over a rough surface,
24 the wheel (60) at one side is easily raised above the other because of the uneven

1 surface. As the spindle (61) is mounted between the wheels (60), if the wheel at
2 one side is raised, the scooter or the electric motorcycle having the wheel
3 assembly is easily turned over.

4 2. The scooter or the electric motorcycle that is mounted with the
5 conventional wheel assembly cannot reduce the shaking force when the scooter
6 or the electric motorcycle over an uneven surface and so cannot to provide a
7 comfortable riding stance for the rider.

8 The present invention provides a stable wheel assembly to mitigate the
9 aforementioned problems.

10 **SUMMARY OF THE INVENTION**

11 The primary objective of the present invention is to provide a stable
12 wheel assembly that has wheels, a connector, a wheel stand with a bracket and
13 a resilient body. Each wheel has a center and a spindle. The connector has two
14 protrusions and one of the protrusions is mounted on the spindle of one of the
15 wheels. Each protrusion has a side with an upright step that is integrally formed
16 with the protrusion at the side and can be mated into the upright step on the
17 other protrusion to form the complete connector. The bracket is mounted on
18 two protrusions and a pivot pin is inserted in the bracket and two protrusions.

19 When the scooter or electric motorcycle fitted with the stable wheel
20 assembly travels over an uneven surface, the wheels are raised and the
21 protrusion is rotated around the pivot pin mounted inside the protrusion and
22 bracket. When the protrusion is rotated, the scooter or electric motorcycle fitted
23 with the stable wheel assembly can be prevented from turning over and the
24 resilient body can reduce shaking force to provide a comfortable travelling

1 stance for the rider.

2 Other objects, advantages and novel features of the invention will
3 become more apparent from the following detailed description when taken in
4 conjunction with the accompanying drawings.

5 **BRIEF DESCRIPTION OF THE DRAWINGS**

6 Fig. 1 is a perspective view of a stable wheel assembly in accordance
7 with the present invention;

8 Fig. 2 is a front side view of the stable wheel assembly in Fig. 1 when
9 travelling over an uneven surface;

10 Fig. 3 is a partial perspective view of a conventional wheel assembly in
11 accordance with the prior art; and

12 Fig. 4 is a front side view of the conventional wheel assembly in Fig. 3
13 when travelling over an uneven surface.

14 **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

15 With reference to Figs. 1 and 2, a stable wheel assembly in accordance
16 with the present invention has a connector (not numbered), at least two wheels
17 (10), a resilient body (20) and a wheel stand (30). The connector has two ends
18 (not numbered), two spindles (not numbered) and two protrusions (11).

19 Each end of the connector has at least one wheel (10) rotatably
20 mounted on the end. Each wheel (10) has a center (not numbered). Each
21 spindle has a first (not numbered) and a second (not numbered). The first end
22 of the spindle is mounted through the center of the wheel (10) and the second
23 end of the spindle is connected to one of the protrusions (11).

24 Each protrusion (11) has a free end (not numbered) and an upright step

1 (113) defined on the free end, and the upright steps (113) on the wheels (10) are
2 faced to and fitted with each other to achieve a complete connector. The
3 protrusion (11) can be various types, in a preferred embodiment of this
4 invention, the protrusion (11) can be a quadratic prism with the upright step
5 (113) or be a cylinder with an upright step. When the upright steps (113) are
6 assembled, each upright step (113) to the faced protrusion (11) will leave a gap
7 (100). A through hole (112) is defined across two upright steps (113). One or
8 multiple threaded holes (111) are vertically defined through each protrusion (11)
9 and near the spindle.

10 The resilient body (20) is used for reducing the shake of the scooter or
11 electric motorcycle when it travels over uneven terrain. The resilient body (20)
12 is mounted under the two protrusions (11) of the connector and has two
13 resilient straps (21). The resilient straps (21) are arcuate in shape and one of the
14 resilient straps (21) is mounted over the other one and leaving a space (not
15 numbered) between two resilient straps (21). The resilient body (20) has two
16 free ends (not numbered) and one or multiple holes (not numbered) are defined
17 in each free end to correspond to the threaded holes (111) in the respective
18 protrusions (11). Multiple threaded pins (not numbered) are inserted into the
19 aligned pairs of holes and the threaded holes (111) so that the resilient body (20)
20 can be fixed under the connector.

21 The wheel stand (30) is mounted on the two protrusions (11) of the
22 connector and on a top face opposite from the resilient body (20), via a bracket
23 (31). The wheel stand (30) has a distal end (not numbered) and the bracket (31)
24 is mounted at the distal end. The bracket (31) is further mounted on the

1 protrusions (11) and has a transverse hole (not numbered). When the bracket
2 (31) of the wheel stand (30) is mounted on the combined protrusions (11), the
3 transverse hole is aligned with the aligned through holes (112) of the
4 protrusions (11). A pivot pin (not numbered) is inserted into the aligned
5 transverse holes of the bracket (31) and the through holes (112) of the
6 protrusions (11), then a nut (not numbered) is threaded on the pivot pin to
7 pivotally connect the connector to the wheel stand (30).

8 With reference to Fig. 2, when a scooter or an electric motorcycle fitted
9 with the wheel assembly in accordance with the present invention travels over
10 uneven terrain, one wheel (10) and the respective protrusion (11) will be
11 pivotally raised because of stones etc. Because the connector has the mated
12 protrusions (11) and the gap (100) is defined between each upright step (113) of
13 one protrusion (11) and the end face of the other protrusion (11), Each
14 protrusion (11) can freely and independently pivot relative to the wheel stand
15 (30). Furthermore, when a scooter or an electric motorcycle is fitted with the
16 stable wheel assembly in accordance with the present invention, the resilient
17 body (20) can reduce the shake force emanating from travel over a rough
18 terrain.

19 The stable wheel assembly in accordance with the present invention
20 has the following advantages:

21 1. The protrusions (11) can be pivoted around the pivot pin that is
22 mounted inside the protrusions (11) and the bracket (31), and so the scooter or
23 electric motorcycle will not incline because the raised wheel (10) absorbs the
24 varying terrain.

1 2. The stable wheel assembly has the resilient body (20) to reduce the
2 shaking force emanating from the rough terrain and so a rider will feel
3 comfortable.

4 Even though numerous characteristics and advantages of the present
5 invention have been set forth in the foregoing description, together with details
6 of the structure and function of the invention, that the disclosure is illustrative
7 only, and changes may be made in detail, especially in matters of shape, size,
8 and arrangement of parts within the principles of the invention to the full extent
9 indicated by the broad general meaning of the terms in which the appended
10 claims are expressed is to be understood.